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Corded blind safety

Keeping 1- to 4-year-old children safe

NZIER report to Ministry Business, Employment & Innovation

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Key points

Uncovered cords for window coverings pose a risk of strangulation to young children who are exposed to them but lack the development capabilities to recognise and manage that risk themselves. Coronial findings show that parental supervision cannot be relied upon to manage that risk. New Zealand currently has no regulations for corded window coverings.

The risk has tragic consequences but is still relatively small nationwide

Data on the number of deaths from strangulation in New Zealand indicate an average of 0.67 deaths per year, equivalent to 0.21 deaths per 100,000 children under 4 years of age. It is a lower cause of death than drowning in New Zealand. The death rate per 100,000 children is similar to that in Australia and Canada before they introduced regulations on corded window coverings, but much higher than recorded in the UK and USA.

Australia, Canada, the UK, and the USA have introduced progressively tighter regulations or standards on these products over the past 15 years. After tightening regulations, Australia and Canada recorded fewer deaths from this cause, but the UK recorded higher deaths. As the tighter regulations usually apply to the installation of new blinds, which is a small proportion of the existing stock, it is difficult to determine how much of the change in the death rate is attributable to the change in regulations.

In all countries, however, the number of deaths per year is very low, the number of years of data is small, and it is difficult to tell whether changes in deaths are statistically significant or just a random blip in the numbers recorded.

We have not been able to find consistent data on injuries from corded window coverings (CWCs) and have focused our analysis on death rates. Data for New Zealand, Australia and the UK did not include injuries while data from Canada indicated fewer injuries than deaths and data from the USA indicated a ratio of about 7.4 injuries per death.

Market penetration is less than in some comparator countries

Although surveys in the UK and USA suggest 'most' houses now have CWCs, this is unlikely to be the case in New Zealand. Trade Me data on sales of corded window coverings gives an incomplete picture of the market. It shows total sales are insufficient to outfit the annual addition of new residential buildings to New Zealand's housing stock, let alone provide for the refurbishment of 'legacy stocks' of old window systems in the existing housing stock.

There is no industry association giving an overview of the complete market for corded window coverings, which is dominated by large suppliers like Hunter-Douglas, and Kresta and a large number of smaller suppliers. Available published information from these companies indicates total sales equivalent to around $1,000 on average for the annual increase of around 30,000 new residential dwellings in New Zealand each year, which covers all sales, not just corded window coverings. The current residential housing stock in New Zealand is approaching 1.9 million dwellings, so any change in standards for new fittings will take a long time to produce an appreciable change in the entire housing stock and a long time to shift the dial on window cord risk.

There are reasons to intervene, but cost-effectiveness is questionable

Window covering cords present a hazard that young children are exposed to at potentially high frequency (every night in bedrooms) in those dwellings that have them, but not in the majority of residential dwellings. The consequences can be serious or fatal, precluding children from growing up and fulfilling their potential.

Parents or adult caregivers should be in the best position to control the risk to their children, but the literature suggests they have often omitted to provide for child safety and have even contributed to a child's death with inappropriate positioning of cots near windows.

Young children are at a developmental stage where they cannot look after themselves against this risk. There is a *prima facie* case for considering some form of intervention to reduce the risk for children if measures can be found that are cost-effective in lowering that risk.

There is a market failure similar to the split incentives between landlord and tenant, in that window coverings may be installed by people without children with little consideration for future occupants with children, and even adults with young children may not fully appreciate the risks posed by window cords.

Available options all have strengths and weaknesses

Interventions considered in such cases commonly include

- Measures aimed at changing behaviour, such as the provision of information and education to adult carers to raise awareness of risks and potential solutions
  - These measures may be difficult to target, as many houses with corded window coverings may not have children, and corded systems are not a product that lends themselves to having safety messages attached to them in visible places
  - Such measures may need recurring refreshers to remind people of the risks
- Measures that reduce the physical propensity of products to present a risk, such as covering up the blind cords or fitting cord guides that limit the size of loops formed
  - Such measures can be fitted to existing systems at relatively low cost, but their effectiveness at reducing risk still depends on how they are used (e.g. raised cleats only take up the slack if users remember to do so)
  - Retrofitting existing dwellings may be more complicated than fitting when new
- Measures aimed at voluntary actions taken by manufacturers, distributors or installers of corded window coverings to lower the risk of newly installed products
  - Voluntary measures by industry may help but depend on fool-proof installation: e.g. changes in manufactured product still depend on installers accepting and correctly using the modification
- Measures to regulate or stipulate standards for products to lower the risk of new products on the market
  - Regulation requires monitoring and enforcement of compliance, but window coverings are not subject to any regulatory system

- Regulations or standards only apply to new products and would not reach the existing stock of houses with corded window coverings, and thus have limited effect on reducing risk in the short to medium term
- Retrofitting replacement systems in the existing stock of houses substantially increases the task of finding houses with existing corded window coverings and enforcing compliance with the new regulation.

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1 Introduction

Steps in these projects outlined in the AOG agreements include:

- Define the problem to be addressed in terms of risk of injury from respective products
- Establish a counterfactual or Business as Usual with no further intervention
- Engage with respective industry suppliers on alternative options to reduce risks
- Construct a spreadsheet CBA model to test alternative intervention options
- Compile, interpret and write up results.

We have contacted suppliers to engage with them on the risks of corded window coverings and potential solutions, but have received limited information in response. We have completed the other steps.

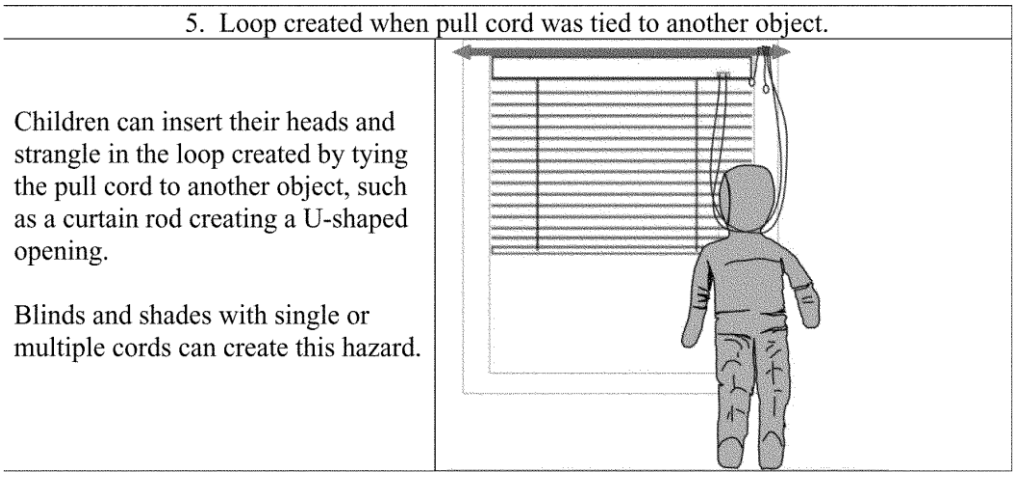
1.1 Problem definition

The problem with uncovered blind cords is the risk to life posed by these products to young children who are exposed to them but lack the development capabilities to recognise and manage that risk themselves. Compounding that risk is the fact evident in Coronial findings that parental supervision cannot be relied upon to manage that risk.

All uncovered cords on all types of corded blinds pose a strangulation risk to young children by potentially forming a loop in which a child's neck can become entangled. (Appendix A summarises the analysis of corded window covering hazards in the United States of America (USA).) An Australian Competition & Consumer Commission (ACCC) review of safety standards for corded internal window coverings found most deaths occur in the bedroom involving children aged between 16 months and 36 months, who are particularly vulnerable to strangulation, as their heads weigh proportionately more than their bodies, they have insufficient muscular control to free themselves, and they have underdeveloped windpipes which means they can suffocate quickly and silently, losing consciousness after 15 seconds (Australian Competition and Consumer Commission 2019).

A diagram of an example of corded window covering (CWC) strangulation risk created by an attempt to move the cord is shown in Figure 1 below. Additional diagrams of the risk from operating and internal cords are shown in Figure 2 in Appendix B.1.1 on page 32 of this report.

Figure 1 Example of CWC hazards



Source: U.S. Consumer Product Safety Commission (2015b)

We have found two sources of data on the number of deaths from strangulation in New Zealand:

- Six deaths over the period 2002 to 2009 due to loose cords. This statistic includes corded window coverings as well as three other hazards. Therefore, our upper estimate of the deaths associated with corded window coverings is three over this period[1].
- Six deaths over the period 2010 to 2018 reported by Coroner Borrowdale[2]).

For our analysis we have used the rate of 0.67 deaths per year identified in the Coroner Borrowdale's report. The risks apply mostly to roller blinds, concertina blinds and slatted blinds like Venetian blinds, which have long draw-cords that hang loosely below their cleating point. Other corded window coverings have risks but may be lower: e.g. curtain pulls often work on a closed-loop cord, kept taut by a weight on the bottom and often finishing above adult waist level rather than reaching down to the floor.

2 International environment

2.1 Overview

Corded blinds have been recognised as a safety risk to young children in the USA since 1981 (Schmitt 2015), in Canada since at least 1991,[3] and in Australia, the United Kingdom (UK)

1 Child and Youth Mortality Review Committee, Te Rōpū Arotake Auau Mate o te Hunga Tamariki, and Taiohi 2013, page 12 'In New Zealand during 2002–09, 13 children and young people died from unintentional strangulation … The deaths fell into two broad categories, those in infants (six cases, range 7–24 months) and those in older children and young people (seven cases, range 6–24 years). The deaths in infants younger than two years of age were due to strangulation with loose cords such as a curtain cord, mosquito net, evening bag strap and a commercially available product to ensure supine sleeping by securing an infant to the bed with a wide band across the abdomen.

2 (X [2021] NZCorC 39 (19 March 2021), File Ref: CSU-2018-HAS-000212 2021 NZCorC 39 19/3/2021. 'This case is one of six within a period of nine years in which a New Zealand infant has been strangled by the cord on a domestic window blind. The fatality rate from this source is therefore 0.67 deaths per annum. Five of those were deaths caused by roman blind cords.' Available at www.nzlii.org/nz/cases/NZCorC/2021/39.html

3 Health Canada has requested that industry voluntarily label CWCs in order to warn consumers of the risk of strangulation (1991, 1996); See Canada Gazette, Part I, Volume 151, Number 24: Corded Window Coverings Regulations June 17, 2017; page 1199.

and Europe at least since 2010. The recognition of the risk has delivered several examples of international cooperation to both raise awareness of the risk and create regulatory standards to mitigate the risk. These are summarised in Appendix B. This section focuses on the availability of corded blind death and injury statistics and corded blind safety standards in the USA, Canada, Australia and the UK.

The risk is difficult to quantify as:

- Harm is underestimated because of the partial coverage of death statistics and the paucity of injury data.
- There is almost no data that can be used to reliably estimate the number of corded blinds installed in houses occupied by children in the high-risk age group.

Recognition of the risk has prompted campaigns to raise parental awareness of the risks of corded blinds and two different approaches to setting safety standards:

- Making exposed cords safe by either ensuring they are out of reach of young children (UK, Australia and Europe) or that they break under light load (UK) or that they are too short to be a hazard (Canada and Australia). (These standards were introduced from 2010 to 2015.)
- Remove exposed cords from corded blinds (USA) – introduced in December 2018, replacing standards intended to make exposed blind cords safe.

The relatively recent introduction of these standards means there has not been sufficient time for them to fully affect the stock of blinds installed in houses and, therefore, their contribution to reducing the risk of strangulation from exposed blind cords.

2.2 Standards/legislation overseas

This section describes the latest standards in force in Australia, the UK, Canada and the USA and, where available, the recent history of the standard. Aside from the USA, all of the countries listed have had standards in place for new corded window coverings (CWCs) since 2010.

2.2.1 Australia

A CWC must be installed so that:

- A loose cord cannot form a loop 220 millimetres (mm) or longer at a height less than 1,600 mm above the floor.
- No part of the cord guide can be installed lower than 1,600 mm above the floor unless:
  - The cord guide will remain firmly attached to a wall or other structure when subject to a force of 70N for ten seconds and
  - The cord is installed to prevent the formation of a loop 220 mm or longer.
- A cleat used to secure a cord will be at least 1,600 mm above floor level.

Regulations introduced mandatory standards for corded window coverings in 2010[4] and mandatory standards for the installation of corded window coverings in 2014.[5] These

[4] Trade Practices (Consumer Product Safety Standard - Corded Internal Window Coverings) Regulations 2010, n.d.

[5] Competition and Consumer (Corded Internal Window Coverings) Safety Standard 2014, 2014.

standards were the subject of a review by the ACCC in 2019 (Australian Competition and Consumer Commission 2019), but the review does not appear to have changed the regulatory standards.

2.2.2 United Kingdom

The UK standard was introduced in 2014.[6] We understand from information provided by the British Blind and Shutter Association (BBSA) (make it safe n.d.) that the main requirements in the standards are:

- For blinds with pull cords and accumulation devices or looped cords with tensioning devices:
  - Accumulation and tensioning devices must be installed a minimum of 1.5 metres above the floor.
  - Accumulation devices are required for any cords with the lowest point less than 1.5 metres from the floor.
- For blinds with looped cords and a breakaway device, the lowest point of the loop must be at least 60 mm above the floor.
- For roman blind lift cords, if the maximum distance between two consecutive attachment/retention points of inner cords is less than or equal to 200mm, a breakaway system is probably not required.

The UK standards are apparently a stricter version of the European Union standard implemented in 2011.

2.2.3 Canada[7]

The regulations define a reachable cord as a cord *"that any person can touch"* when the window covering has been installed and set a maximum length for reachable cords:

- With either one free-end or between two contact points – 22 centimetres (cm) when pulled in any direction by gradual application of a force of 35N.
- The perimeter of a loop formed by a reachable cord when pulled in any direction by gradual application of a force of 35N–44cm.

If two reachable cords can be connected after each has been pulled in any direction by gradual application of a force of 35N, then the maximum length of the resulting cord is 22 cm, and the maximum perimeter of the resulting loop is 44 cm.

2.2.4 USA

On 15 December 2018, the USA Consumer Product Safety Commission (CPSC) introduced a new standard that required all stock products (which are estimated to account for 80 percent of annual sales) to be cordless or have inaccessible or short cords. The USA has a longer published history (see Figure 3) of recognition and analysis of CWC strangulation risk than the other countries listed in this section. However, the USA has been slower to adopt prescriptive regulation than those countries.

6 BS EN 13120:2009+A1:2014 – Internal blinds – Performance requirements including safety

7 Government of Canada (2019, p. 2) Current to September 22, 2021, Last amended on May 1, 2021.

2.3 Overseas evidence reports

Statistics on deaths and injuries from corded blinds are summarised in Table 1. These statistics are obtained from one-off studies by product safety agencies or advocacy groups off death and injury databases. They are unlikely to capture all corded blind incidents. There are variations in the number of reported deaths depending on the source. We have converted the reported death rate to deaths per 100,000 children aged 0 to 4 years. This conversion highlights the following:

- The number of fatalities is a misleading indicator of the risks of corded blind death.
- USA and UK have much lower rates of fatality per 100,000 children than Canada or Australia

There are no consistent estimates of the number of CWCs installed in houses. However:

- Comments in articles about window coverings in the USA suggest CWCs are used in most houses
- A survey of 5,000 homes in the UK (UK Public Health Blind Cord/Chain Safety Working Group 2014, 11–12, paragraph 21) with children under 5 suggested that about 77 percent of these homes had CWCs in bedrooms, and 66 percent had CWCs in living rooms. More than two-thirds of the corded window coverings had cords within reach of children under 5.

The lack of data on the number of CWCs installed and the rate at which they are replaced makes it difficult to estimate:

- What proportion of the population of at-risk children are exposed to unsafe CWCs?
- How quickly can standards be applied to new CWCs to lower the risk by replacing unsafe CWCs.

Table 1 Summary of corded blind death and injury statistics

Australia, UK, Canada and USA

Country	Death rate pre-standard		Death rate post-standard	
	Per year	Description	Per year	Description
New Zealand[1]	0.67	Six over 2010 to 2018 attributable to CWC cords	na	New Zealand does not have specific child safety standards for CWC.
Australia[2]	1.36	15 deaths over 1999 to 2009 (1.36 per year). Most deaths occur in the bedroom and involve children aged between 16 and 36 months.	0.67	Six deaths over the period 2010 to 2014 (1.2 deaths per year). Five of the six deaths were children aged less than 18 months and four occurred in cots close to where a CWC was installed. No deaths over 2014 to 2017. One death in 2018, three deaths in 2019 and one death in 2020.
Canada	1.42	30 deaths over 1989 to 2009. 22 injuries over the same period. Children between the ages of one and three years most at risk.	1.11	Nine deaths over the period 2010 to 2018 after a national standard was introduced in 2009. More stringent regulations were introduced in 2019.
UK[3]	1.11	12 deaths over 1999 to 2009. 18 deaths over 2010 to 2015. Increase in death rate after 2009 may be partially explained by massive growth in sale of CWC.	0.5	One death in 2016. (Unclear what period this data covers)
USA[4]	10.42	271 deaths over 1990 to 2015. An additional 2,002 children treated in hospital for entanglement injury (77 per year).	na	Standard requiring all CWC to be cordless or to have inaccessible or short cords implemented at the end of 2018.

Note:

1 Coroners report (X [2021] NZCorC 39 (19 March 2021), File Ref: CSU-2018-HAS-000212 2021 NZCorC 39 19/3/2021.

2 See Table 18 for details of the fluctuation in death rates since 2010.

3 See UK Public Health Blind Cord/Chain Safety Working Group (2014, page 8, paragraph 14) and Australian Competition and Consumer Commission (2019, 5).

4 The evolution of safety standards in the USA does not fit into the binary classification used for the other countries in this table. See Appendix B.1 for details.

Source: NZIER

Table 2 shows that although New Zealand's annual fatalities from corded blinds are similar to other Anglophone countries, its fatality rate is far higher when adjusted to account for population size.

Table 2 Summary of corded blind death and injury statistics

Children aged 0 to 4 years

Country	Period applicable	Deaths per year per 100,000 children	Period applicable	Deaths per year per 100,000 children
New Zealand[1]	*2002-2009*	*0.14*	2010-2018	0.21
Australia[2]	1999-2009	0.20	2010-2020	0.16
Canada	1989-2009	0.08	2010-2018	0.05
USA[3]	1990-2015	0.06		
UK[4]	1999-2009	0.03	2010-2015	0.08

Notes:

1 The. Child and Youth Mortality Review Committee, Te Rōpū Arotake Auau Mate o te Hunga Tamariki, and Taiohi 2013, page 12 reported six deaths from unintentional strangulation with loose cords and named curtain cords and three other specific hazards. Assuming one death for each of the other hazards, three deaths is the upper estimate of deaths attributable to curtain cords.

2 The death rate fell to 0.11 over the period 2010 to 2018.

3 We have not been able to find data over a shorter period.

4 The increase in the UK death rate seems to have been driven by a substantial increase in the installation of CWC after 2000.

Source: NZIER

2.4 Cost of intervention

We have found two published studies on the cost of intervention to reduce the strangulation risk of corded blinds:

- Canada – Regulatory Impact Analysis Statement for the regulations implemented in April 2019 (Government of Canada 2019)
- USA – Cordless Window Covering Cost Analysis (U.S. Consumer Product Safety Commission 2018)[8]

These studies used different approaches. Both had much more granular data about manufacturing costs than is available in New Zealand.

8 The statement was made by Consumer Product Safety Commission Staff in December 2018. The statement was based on a market research report: "Window Coverings Market Research Report," Industrial Economics, Inc., Cambridge, Massachusetts, December 2015 and a manufacturing cost analysis: "Manufacturing Cost Analysis: Cordless vs. Corded Products," Jitesh Panchal, Ph.D., Purdue University, February 2016.

2.4.1 Canada

Market

The regulatory impact analysis statement for Canada estimated the benefits and cost of the regulations and calculated a benefit cost ratio of 1.88. The study estimated annual sales of window coverings of 9.9 million units (Government of Canada 2019, 1216)[9] in Canada but assumed that voluntary compliance with American standards would prevent 60 percent of the strangulation incidents leaving 3.97 million units that would be affected by the regulations (Government of Canada 2019, 1216). The cost and benefits were estimated over 20 years for the 40 percent of the Canadian market not affected by the USA voluntary standard and then discounted at a rate of 7 percent to calculate their net present value.

Benefits

The benefit calculation assumed:

- A 14 percent annual fall in the rate of fatalities based on average 7-year life for all CWCs (Government of Canada 2019, 1217).[10]
- A social benefit for an average Canadian of CAD 75 from a 1 out of 100,000 reduction in the risk of death. This will generate a socioeconomic benefit of CAD 0.4 million in the first year, rising to CAD 3 million per year after year 7 providing a social benefit over 20 years with a net present value of CAD 24.2 million (Government of Canada 2019, 1217).
- A reduction in the cost of testing for industry of CAD 4.9 million per year providing cost savings over 20 years with a net present value of CAD 53 million (Government of Canada 2019, 1218). The present value of the cost saving is more than double the present value of the social benefit of the reduction in fatalities.

Cost

The cost estimate included the following:

- Incremental component and assembly costs of CAD 2.92 per unit applied to 3.89 million units (Government of Canada 2019, 1221).
- One time R&D cost of CAD 3.98 million and tooling costs of CAD 11.1 million.

Results[11]

Costs were estimated at CAD 29.1 million in the first year and CAD 14 million in subsequent years. Benefits were estimated at CAD 5.4 million in the first year, increasing to CAD 7.9 million in year 7 and subsequent years. The costs and benefits for the next 20 years were discounted at 7 percent per year. The present value of the benefits was CAD 77 million, and the present value of the cost was CAD 145 million, resulting in a cost-benefit ratio of 1.88 (Government of Canada 2019, 1218 and 1224).

[9] The estimate was based on scaling the Window Covering Manufacturers Association (WCMA) estimate of 100 million units per year in the USA and then scaling this down by the average of Canada's population and the number of households as a share of the USA population and household count – 10.91 percent and 11.39 percent. The authors then assumed that 11 percent of these sales would not be affected by the regulations as they were (cordless, interior shutters, curtains, etc.).

The United States Census Bureau estimates the USA population as of 1 July 2019 was 328,239,523 and the number of households was 120,756,048. Available at https://www.census.gov/quickfacts/fact/table/US/HSD410219

[10] Government of Canada (2019, 1217).

[11] Government of Canada (2019, 1218 and 1224).

In New Zealand the results of cost benefit studies are usually summarised as a benefit cost ratio – the inverse of the measure presented in the Canadian study. The benefit cost ratio for Canadian regulations would be 0.53, and the net present value would be CAD -68 million. If the benefit cost ratio excluded the cost saving on testing it would be 0.17.

2.4.2 USA

The key points from the report (U.S. Consumer Product Safety Commission 2018) were:

- Cordless options are available for virtually every corded window covering option but cost more.[12]
- The target life for stock products (the bulk of the market) is 3 to 5 years, but many remain in homes for 10 or more years. The target life for custom products is 10 years, but many remain in homes for 15 to 20 years.[13]
- Average additional costs[14] for cordless products manufactured in a:
  - Low-cost environment (overseas) were 8 to 10 percent for slatted blinds and 6 to 8 percent higher for roman shades
  - High-cost environment (domestic) was 14 to 23 percent for slatted blinds and 14 percent higher for shades.

2.5 Conclusion

Reporting on death and injury attributable to CWCs indicates the risk associated with these products has been recognised for 20 years. However, the reports do not provide a useful basis for assessing the effectiveness of the alternative risk management measures – education campaigns, standards to make exposed cords safe, and standards to remove exposed cords from window coverings. For example, the fall in the number of deaths in Australia since their 'make exposed cords safe' standard was introduced in 2010 is not consistent with the experience of the UK, Canada and the USA, which suggests this type of standard was not effective.

Commentary on CWC risk in these countries indicates there are no official statistics on the number CWCs installed in homes, let alone their replacement rate. A survey in the UK and comments about the window coverings in the USA suggest that most homes have corded window coverings.

3 New Zealand desktop research

3.1 Industry structure

We have not found any official statistics on the value or volume of CWC sales in the New Zealand market or the characteristics of the stock of window coverings installed in New Zealand houses. We have found furniture sales data and financial results for two window covering retailers, some price information, and high-level data on the New Zealand housing

12 U.S. Consumer Product Safety Commission (2018, 3).

13 U.S. Consumer Product Safety Commission (2018, 2).

14 U.S. Consumer Product Safety Commission (2018, 19).

stock. This section summarises the published data and describes how we have used it to create high and low estimates of the sales of window coverings and how it can be compared to the assumed stock of window coverings.

3.1.1 Published sales data

We have used the following published data to make rough estimates of the size of the value of CWCs sold per year:

- Retail sales for 'Furniture, floor coverings, houseware and textile goods retailing'[15] were $2,882 million in the year ended 31 March 2021. Retail blind and curtain sales are one of many categories in this group.
- Imports of curtains, interior blinds valued at $18.2 million over the 2020 calendar year[16]. A more realistic estimate of the value of imports of blinds is $6.6 million comprising $2.3 million of 'builders ware' classified as blinds[17] and say $3.8 million (50 percent) of 'curtains interior blinds and valances'[18]. (The data does not provide any usable data on the number of blinds imported.)
- Reported sales[19] by major specialist retailers of about $24.9 million in 2020 and $28.1 million in 2019:
  - Hunter Douglas: Large multinational with headquarters in Rotterdam. Operates in New Zealand though New Zealand Window Shades with annual revenue of $23.2 million in 2020 ($25.2 million in 2019)
- Kresta: Operates in Australia and New Zealand Annual revenue in New Zealand was $1.7 million in 2020 ($2.9 million in 2019).
- Information from one general retailer[20] has enabled us to make some guesses about the size and shape of the 'do it yourself market'. The main insights from this information, assuming the general retailer is representative of the market, are that general retailer sales are:
  - Almost entirely imported products and sold singly rather than in house-lots.

15 Statistics New Zealand uses Australian and New Zealand Standard Industrial Classification (ANZSIC) codes to classify industries. The more digits in the code, the more granular the classification. The most granular publicly reported ANZSIC code for retail sales data is G421 - 'Furniture, floor coverings, houseware and textile goods retailing' which includes a wide range of products. The most granular industry class for which data is collected is G4211 - Furniture Retailing which includes retailing of: 'antique reproduction furniture' 'awnings', blinds', 'furniture' and 'mattresses'. Statistics New Zealand can provide data on retail sales on G4211, but this category is likely to be dominated by furniture and mattress sales.

Manufacturing of window coverings is classified by the material used: 'Other Fabricated Metal Product Manufacturing n.e.c.' (C22990) for metal venetian blinds and 'Cut and Sewn Textile Product Manufacturing' (C13330). These categories are too broad to give a useful upper estimate of the size of the window covering industry.

16 Overseas merchandise trade imports '2020 imports HS10 (zipped CSV, 3.32 MB). Available at www.stats.govt.nz/large-datasets/csv-files-for-download/overseas-merchandise-trade-datasets#yearly-datasets

17 New Zealand Customs Service (2021, 24 and 25, classifications 3295.30.0100, 3295.30.0101 and 3295.30.0109).

18 New Zealand Customs Service (2021b, 143, classifications 6303.12.0000, 6303.19.0010, 6303.19.0019, 6303.91.0900, 6303.92.0900 and 6303.99.0900).

19 We note that these specialist retailers sell interior and exterior blinds to both the residential and commercial markets. We were not able to find any information that enabled a more granular estimate of the value and volume of sales to the residential market. We also identified Uniline a wholesaler of blind components with annual sales of $6 million in 2020.

20 With the assistance of MBIE we approached three general retailers. Only one responded.

- Predominantly roller or venetian blinds and all sold with tensioners or other safety devices if they have exposed operating cords. (A small proportion are sold with enclosed operating cords.)

Combining our estimate of the value of blind imports with an assumed average price of $120 per unit (based on a cursory inspection of general retailer prices shown on websites) and an assumed mark-up of 100 percent suggests that number of imported blinds sold would be about 110,000 per year. This is about 15 to 20 percent of the mid-range estimate of the number of blinds sold by specialist retailers in Table 4 below. However, because the blinds seem to be sold singly rather than in house-lots it is difficult to fit this market into our cost benefit analysis of safety regulation – because of the uncertainty about whether the individual blind is fitted in a child's room or another room. Accordingly, we have focussed our cost benefit analysis on specialist retailers and house-lots.

3.1.2 Estimating specialist retailer market revenue

A search of the New Zealand Companies Register using the keyword 'blinds' identified 223 active companies, of which 138 include the word 'blinds' in the company name. Almost none of these companies reported financial data. For this analysis, we assume 220 companies are operating in the market. Based on the above information, we estimate the size of the specialist retailer market by assuming that the reported sales by the major retailers of $28 million in 2019 represent a range of possible market shares:

- 25 percent of the market – which would imply a market of $112 million, and average sales of $0.38 million per year for the other 220 companies.
- 20 percent of the market – which would imply a market of $140 million and average sales of $0.51 million per year for the other 220 companies.
- 15 percent of the market – which would imply a market of $187 million and average sales of $0.72 million per year for the other 220 companies.
- 10 percent of the market – which would imply a market of $280 million and average sales of $1.15 million per year for the other 220 companies.

3.1.3 Price per window covering

The price of window coverings varies widely depending on the fabric used to make the covering and whether the operating system for the window covering is manual or automatic. Indicative prices for a house lot of corded window coverings from NZ Blinds (an online supplier) and Russells and Harrisons (which supply and install window coverings) are listed in Table 3 below.

Table 3 Indicative blind prices per house

Total cost per house and average per CWC ($)

		Total cost per house		
House size	Windows	NZ Blinds[1]	Russells[1]	Harrisons[2]
Small	8	1,410	1,910	2,800
Medium	10	1,762	2,550	3,200

Total cost per house				
Large	12	2,415	3,150	4,000
Average cost per CWC				
House size	**Windows**	**NZ Blinds[1]**	**Russells[1]**	**Harrisons[2]**
Small	8	176	239	350
Medium	10	176	255	320
Large	12	201	263	333

Note:

1 Estimated from data available at https://nzblinds.co.nz/how-much-do-blinds-cost-our-cost-guide/

2 Available at https://harrisonscurtains.co.nz/lets-talk-price

Source: NZIER

3.1.4 Estimating new sales volume

To estimate the annual sales volume, we divide our estimate of the annual sales revenue from section 3.1.2 by the price per house assumption for a medium (10 windows) house from Table 3. The results of this calculation are shown in Table 4 below.

Table 4 New sales volume scenarios

Number of households fully refitted each year

Market share[1]	Low - Harrisons	Mid - Russells	High - NZ Blinds
25%	35,000	43,922	63,564
20%	43,750	54,902	79,455
15%	58,333	73,203	105,940
10%	87,500	109,804	158,910

Note:

1 Assumed market share of Hunter Douglas and Kresta.

Source: NZIER

These volume estimates are an indication of the maximum rate of reduction in the stock of blinds that are a potential strangulation risk from a standard that applies to new blinds only (as opposed to retrofitting safety improvement devices to existing blinds). Table 5 lists the number of households[21] by accommodation tenure and size of house.

Table 5 Household accommodation by tenure and number of bedrooms

Census 2018

Bedrooms	Owner occupied[1]	Rented	Total
One	26,901	74,433	**101,334**

21 The number of households is used for this analysis rather than the housing stock because households are the unit of measure for some statistics on the number of dependent children.

Bedrooms	Owner occupied[1]	Rented	Total
Two	150,444	165,567	**316,011**
Three	484,776	234,645	**719,421**
Four	309,489	85,671	**395,160**
Five or more	95,286	25,794	**121,080**
Total	**1,066,896**	**586,110**	**1,653,006**

Note:

1 Owner-occupied includes houses that are partly owned or owned in a trust.

2 The 2018 Census gave the total housing stock as 1.856 million, including 0.2 million unoccupied dwellings and housing provided by Kainga Ora, councils, iwi and other community housing suppliers in addition to this table's 1.653 million private housing

Source: NZIER

Dividing the number of households in Table 5 by the mid-range sales volume scenario of 54,900 or 73,200 house-lots per year from Table 4 with the number of households suggests that it could take 20 to 30 years to replace the stock of window coverings (without allowing for new construction or households that replace their window coverings less frequently than average).

Table 6 Minimum replacement time for CWC

Time in years

Market share[1]	Low Harrisons	Mid -Russells	High - NZ Blinds
25%	52	41	28
20%	41	33	23
15%	31	25	17
10%	21	16	11

Note:

1 Assumed market share of Hunter Douglas and Kresta.

Source: NZIER

The approach used in the Canadian regulatory impact assessment of scaling the estimated USA annual sales of 100 million units by the New Zealand population provides a crosscheck on this estimate. The New Zealand population was 1.52 percent of the USA population in mid-2019. The number of households in New Zealand was 1.50 percent of the number of households in the USA, providing an average scale factor of 1.51 percent. Multiplying estimated USA sales of 100 million units per year suggests an estimated sales volume of 1.51 million units per year or 151,000 house-lots, assuming an average of 10 window covering units per house. This is at the upper end of our estimate of sales activity based on published accounts of Hunter Douglas and Kresta. Even at this rate, it would still take more than 10 years for a standard applying to the new window covering to remove the strangulation risk from New Zealand homes.

3.2 TradeMe sales data

The TradeMe sales data are summarised in Table 7 below. The data in Table 7 is a low estimate of the volume of sales for the following reasons:

- It is based on 88 percent of the 26,720 lines provided by TradeMe to allow a more granular classification of the type of blind. The TradeMe data reported either 'Roman' or 'Other blinds'. Analysis of the TradeMe 'listing title' was used to reclassify 'other blinds' into 'venetian', 'roller', 'wooden' and 'vertical'. (International commentary suggests that operating cords also pose a strangulation risk to young children.)
- Some of the listing lines include more than one blind, but it is not clear which item the price listed in the TradeMe data refers to. Our table assumes one window covering per line.

The volume of sales is low compared to the number of dwellings in New Zealand and the estimated volume for new blind sales in section 3.1.

The TradeMe data suggests that about 34 percent of sales are 'venetian'[22] or similar, 28 percent are roller blinds, and 19 percent are roman blinds.

[22] Includes 'wooden' – 7 percent of sales and 'cedar' – 1 percent of sales. The other categories not listed above are 'vertical' – 8 percent of sales and 'unknown type' – 12 percent of sales.

Table 7 Blind sales

Estimated sales volume and value for year ended 31 July from TradeMe data

Volume (number of listings)								
Year	**Roller**	**Venetian**	**Roman**	**No Type**	**Vertical**	**Wooden**	**Cedar**	**Total**
2017	1,315	1,101	921	691	431	485	91	**5,035**
2018	1,212	1,426	992	595	336	336	99	**4,996**
2019	1,367	1,171	835	497	439	276	65	**4,650**
2020	1,291	1,145	726	436	333	197	46	**4,174**
2021	1,432	1,238	912	490	264	242	38	**4,616**
Total	**6,617**	**6,081**	**4,386**	**2,709**	**1,803**	**1,536**	**339**	**23,471**
Value in $ (number of listings multiplied by sale price)								
Year	**Roller**	**Venetian**	**Roman**	**No Type**	**Vertical**	**Wooden**	**Cedar**	**Total**
2017	148,290	92,441	40,619	101,307	27,522	85,011	3,478	**498,668**
2018	132,691	109,616	54,848	72,988	25,537	10,397	3,224	**409,301**
2019	162,474	114,629	44,980	46,744	19,762	7,880	2,044	**398,512**
2020	151,924	111,919	42,949	43,977	15,749	6,704	1,812	**375,035**
2021	125,358	98,275	49,800	36,131	14,142	6,191	793	**330,690**
Total	**720,736**	**526,880**	**233,196**	**301,148**	**102,712**	**116,183**	**11,351**	**2,012,206**

Source: NZIER

Table 8 Blind prices

Estimated average and median price for year ended 31 July from TradeMe data

Average price ($)								
Year	Roller	Venetian	Roman	No Type	Vertical	Wooden	Cedar	All types
2017	113	84	44	147	64	175	38	**99**
2018	109	77	55	123	76	31	33	**82**
2019	119	98	54	94	45	29	31	**86**
2020	118	98	59	101	47	34	39	**90**
2021	88	79	55	74	54	26	21	**72**
Total	**109**	**87**	**53**	**111**	**57**	**76**	**33**	**86**
Median price ($)								
Year	Roller	Venetian	Roman	No Type	Vertical	Wooden	Cedar	All types
2017	42	21	25	50	20	43	20	**30**
2018	40	25	25	36	20	20	25	**28**
2019	40	25	30	20	12	20	25	**27**
2020	48	20	35	30	9	20	27	**28**
2021	29	20	31	25	15	20	5	**25**
Total	**40**	**21**	**30**	**31**	**15**	**21**	**20**	**27**

Source: NZIER

3.3 Conclusions

The information on the size and shape of the CWC market in New Zealand suggests a replacement rate of 10 to 20 years but does not provide any useful information on the composition the existing stock of blinds.

We estimate (see section 4) that the number of households with children in the at-risk age group of one to three years is about 134,000 in any given year – approximately 8 percent of the estimated number of households. We also estimate that about 44,000 households enter and leave this group each year. In other words, at least 70 percent of households will move into and out of the at-risk group without replacing their CWCs.

4 Risk assessment

4.1 Approach

A risk assessment has the principal aims of identifying the seriousness of a hazard, determining the probability of injury from it, and combining the hazard seriousness with its probability to assess risk. Then attention can be turned to whether there are cost-effective things to be done that could reduce that risk.

In approaching this assessment, we draw on guidance from the OECD (2016) and the US Consumer Product Safety Commission (2015a) to analyse the characteristics of the risks from uncovered cords on indoor window coverings. The analysis is summarised in Table 9 below.

4.2 New Zealand at-risk population

First, we note that window blind strangulation is a hazard to very young children. We estimate that the population of children in New Zealand between one and three years has averaged about 177,000 over 2017 to 2021 (year ended 31 March), with an average birth rate of 59,000 children per year. We estimate that the number of children in New Zealand aged 0 to 4 years old averaged about 279,600 over the 2013 and 2018 Census results, implying a blind cord death rate of about 0.2 per 100,000 children.

Census data indicates that the number of households where the youngest dependent child is between zero and four years of age is about 75 percent of the number of children aged between zero and four years. Applying this ratio to the estimated population of children aged one to three years of age suggests the potential number of households in the at-risk group is about 134,000 and that about 44,000 households enter and leave this group each year.

4.3 Comparisons to other causes of infant death

To put this risk in perspective, another cause of child death that has been described in Coronial reports as posing a similar but more widely recognised risk to children is drowning. In 2019, four under 4-year-olds drowned in New Zealand, which translates to around 1.1 per hundred thousand. Drowning has seen a dramatic reduction in the number of deaths among under 4-year-olds in New Zealand, having fallen from 8 drownings in 2011 and 12 in

2002. This can be attributed to much greater awareness of water hazards for the very young following successive water safety campaigns over many years. Drownings are a bigger hazard than uncovered corded window cords because more children are exposed to water hazards, and many of its hazards are more readily recognised by parents.

Compared to other Anglophone countries, New Zealand has higher rates of strangulation by uncovered blind cords before these other countries introduced regulation (see Appendix B.3). Before introducing safety standards, Australia, USA, and the UK all had death rates substantially below 0.4 per 100,000 children, whereas Canada had a somewhat higher rate. All these comparator countries have introduced safety regulations and/or standards in recent decades, as described in section 2.2 above.

Table 9 Risk assessment of corded blinds -product description

Category	Comment
Product description	Corded window coverings, including blinds and curtain pulls with long uncovered cords that can form loops
Hazard scenarios	Young children can get entangled in looped cords and strangled.
Population at risk	Children aged 1 to 3 years.
Intended/non-intended users	Blind cords are used by parents and others to ease the opening and closing of large window coverings; but young children without the capacity to recognise the risks are also unintended users who suffer injuries.
Reasonably foreseeable uses	Raising and lowering or opening and closing indoor window coverings
Frequency and duration of uses	Up to daily, twice or more on each day
Hazard protective behaviour	Children lack the cognitive and muscular capacity to recognise the risk and avoid injury. Adult parents could do several things to reduce risk of their children's entanglement, by removing cots from the proximity of blind cords and ensuring cords are kept out of reach of children
Consumer behaviour in case of an incident	Young children under 3 years old have underdeveloped windpipes, so are unable to scream for help when entangled and can become unconscious quickly (ca 15 seconds)
Consumer's cultural background	There is insufficient information to infer cultural characteristics affecting the incidence of strangulation by window cords

Source: NZIER

Table 10 Risk assessment of corded blinds – hazard identification

Hazard identification	Probability of hazard occurrence and consequence
Product characteristic (whole product, specific components)	The hazard in the product comes from the cord's length and the way it is fixed to the window frame; there are cord guides and covers that reduce the tendency for cords to form loops, but these are not costless and need to be fixed and used properly (by adult supervisors)
Design vs defect	The issue is a design characteristic inherent to corded blinds, not a defect. It can be exacerbated by careless use by parents not tying up cords as intended. Design solutions include ensuring cords cannot form large loops or are covered. These solutions are estimated to add 10 to 20 percent to the cost of blinds in the USA
Physical cognitive characteristics of users	Children under the age of 4 are dependent on their parents and lack the mental development to recognise risks; being curious and playful, they may put themselves in harm's way, viewing the cord as a plaything
Environmental factors	Incident records show that environmental factors are often significant in deaths by window cords, such as cots and other furniture placed within a child's reach of such cords, or cords not tied up as intended

Source: NZIER

Table 11 Risk assessment of corded blinds – risk analysis

Risk analysis	
Quantity and distribution of hazardous product	The quantity of housing with corded window coverings is difficult to discern from existing data. From TradeMe data a lower bound estimate is around 23,500 corded window coverings sold per year. Assuming houses with corded blinds have them for 2.5 windows on average (most blinds are in bedrooms, most houses have 2 or 3 bedrooms), those sales would account for about 10,000 houses. Over the past five years, the mean annual net additions to new dwellings have been about 31,000, about 1.8% of the total housing stock of about 1.9 million. The known sales would account for about a third of new house fitouts, or less after accounting for old house refurbishment and fitting in commercial premises.
Exposure time – frequency/duration of use; product lifespan actual vs recommended	We estimate the number of households with young children at risk of blind cords is about 134,000, 7.1% of the total residential housing stock in 2021. About 44,000 households enter and leave this group each year as children traverse the under 4 years age group. This means about 277,000 children are potentially at risk every day they occupy a room with these corded window coverings, and most at risk when they are in bedrooms, where there is less adult supervision than in living rooms.
Path to injury	A curious child reaches for a blind cord near its bed or dropped to the floor, gets entangled in its loops; lacks the motor skills and cognitive ability to extract itself and in its struggles, gets the cord tightened around its neck.
Likelihood of hazard manifestation - user behaviour, environmental factors	The risk of injury is heightened when adult users of blinds fail to gather and tie up loose cord so it cannot be reached by toddlers; when cots and other furniture are placed in positions where toddlers can reach the loose cords; when blinds are fitted with excessive cordage that reaches the floor.
Risk characterisation on probability and severity	The risk is to very young children, dependent on their parents or other adults whose supervision is often less than total. There is heightened risk in bedrooms where children spend most of their time unsupervised by adults.
Risk assessment and prioritisation	Between 2002 and 2009, there were up to 0.38 deaths per year on average from this cause, which has increased in recent years to 0.67 per year between 2010 and 2018.
Comparing risk to acceptability criteria	This average incidence of deaths can be compared to about 4 per year on average in the same age group from drowning in New Zealand, although the incidence from drowning comes from a wider number of children being exposed to water hazards, but mostly at a lower frequency than the risk of children with cord blinds at home. Annual blind cord death expressed per 100,000 children is .21 in New Zealand, higher than in Australia, Canada, the UK and the USA before they introduced regulation over the last 15 years.

Source: NZIER

Key characteristics of this assessment that can be drawn from this table are that:

- The risk of strangulation by blind cords applies to very young children at an early stage of their physical and cognitive development, who are dependent on parents or other adult carers for providing a safe environment protected from hazards
- Coronial reports and other discussions of these deaths show that lack of adult supervision, or in some cases unsafe adult choices in the placing of child cots and other furnishings close to uncovered cords, have contributed to the hazard faced by children. However, they also note that the very short time in which strangulation can occur and the lack of sound from the affected child make it unlikely that more intense supervision could effectively manage this risk.
- Corded blinds are consumer products aimed at the occupiers of residential properties who may not have children or consider the risks to future child occupants of those properties when choosing to install corded window covers; subsequent occupiers who move in with children may not recognise the risk or be able to modify the house to reduce the risk (e.g. in rental properties). There can be a market failure akin to the "split incentive" issue with energy efficiency and heating in rental properties: the landlord has no incentive to provide a safe installation as they do not expect its benefits to be recoverable in rents, but renters have no incentive to instal alternative window systems as fixtures in another's property
- Strangulation by blind cords is not the most frequent cause of death for young children, but New Zealand has a higher rate of such deaths than in three out of four Anglophone comparator countries before they all introduced regulatory measures to lower the risks further.

The blind cords present a hazard that young children are exposed to at potentially high frequency (every night in bedrooms), with serious consequences precluding children from growing up and realising their potential contribution to society and their self-fulfilment.

Parents or adult caregivers should be in the best position to control the risk to their children, but the literature suggests they have often overlooked the risk and contributed to their child's death.

Young children are at a developmental stage where they cannot look after themselves against this risk.

4.4 Potential interventions

There is a prima facie case for considering some form of intervention to reduce the risk for children if measures can be found that are cost-effective in lowering that risk.

Interventions considered in such cases commonly include

- Measures aimed at changing behaviour, such as the provision of information and education to adult carers to raise awareness of risks and potential solutions
- Measures that reduce the physical propensity of products to present a risk, such as covering up the blind cords or fitting cord guides that limit the size of loops formed
- Measures aimed at voluntary actions taken by manufacturers, distributors or installers of corded window coverings to lower the risk of newly installed products

- Measures to regulate or stipulate standards for products to lower the risk of new products on the market
- Measures such as new standards or industry guidelines that act on new stock of corded window coverings being fitted. Such measures are adopted more or less at the rate of market demand for window coverings.

Regulations requiring retrofitting replacement systems in the existing stock of houses with corded window coverings are more difficult to monitor and enforce. In either case, it may take a long time for new standards to spread through the housing stock to the point where they significantly reduce the risks posed by corded window coverings.

These interventions could be made more effective and efficient if they could be integrated into the antenatal education to the parent and the health care offered to children up to three years of age.

5 Costs and benefits of options to improve safety

5.1 Benefits

A rough and indicative quantification of the benefits of reducing the rate of child strangulation can be calculated by multiplying the reduction in the number of deaths by the value of a statistical life used in transport of $4.5 million. On this basis, if New Zealand was able to reduce its average death rate from 0.67 to zero (once the safety measures were fully implemented), the benefit value would be roughly $3 million per year. Overseas experience suggests that the introduction of a standard for new blinds can halve the death rate within the first eight to 10 years.

5.2 Cost of intervention

The cost of intervention and the time required for the intervention to achieve a zero-death rate (and the maximum benefit value) would vary with the type of intervention chosen.[23]

5.2.1 Safety standard for new blinds that makes all CWC cords safe

A new standard should be able to eliminate the risk of accidental strangulation of children. Applying the minimum estimated additional cost for CWCs of 10 percent based on the USA study (U.S. Consumer Product Safety Commission 2018, 19)[24] to the sales values estimated in section 3.1.2 suggests the cost of the new standard[25] would be between

- If annual sales are $112 million (the 'low' estimate of the market size), replacement cost of non-compliant CWC is $11 million per year and takes 30 years to complete.
- If annual sales are $280 million (the 'high estimate of the market size) replacement cost of non-compliant CWC is $28 million per year and takes 15 years.

[23] In New Zealand, the tenure of the household may affect the efficiency of these interventions for tenant households as decisions to replace CWC or install safety brackets are likely to be made by the owner. In Australia landlords are required to ensure that CWC comply with the safety standards.

[24] Window Coverings Comprehensive Cost Analysis, page 19

[25] This estimate does not allow for reduction is demand in response to the increase in price.

(The Canadian risk analysis assumed that their intervention would only affect about 40 percent of window coverings sold because of voluntary compliance with American standards. This effect is unlikely to be as large in New Zealand because imports of blinds, some of which may comply with USA standards, are a small part of the New Zealand market. However, the size of this effect cannot be conclusively assessed using desktop research.)

5.2.2 Fitting cord tensioners to new blinds

Fitting brackets that tension cord loops or cleats that allow the operating cords to be tied out of the reach of at-risk children is a partial alternative to setting new safety standards for CWCs. These measures remove the risk of strangulation from CWC operating cords but not the cords that run through the slats or behind the fabric to raise and lower the blind. We have not been able to find definitive assessments of the effectiveness of these safety devices, but they are referred to in the advice on how to make CWCs safe in Australia, the UK and the USA. A statement[26] by CSPC staff indicated these measures could prevent two-thirds of CWC deaths. This statement is supported by the CSPC analysis of strangulation incidents over 1996 to 2012 which showed 171 out of 249 incidents (68.7 percent) were attributable to pull cords or continuous loop cords – see Table 16.

A CPSC statement (U.S. Consumer Product Safety Commission 2016) on two studies into the effectiveness of safety devices in reducing risk to children noted the study findings pointed to:

- Caregiver awareness of cord entanglement risk did not translate into precautionary action, partly due to lack of information at the point of sale.
- Difficulty using and installing safety devices. (Cleats are simpler to install than cord-tensioners.)
- Preference for a passive mechanism that did not require action by the user. (This means cord tensioner devices are preferred to cleats.)

Operating cord tensioner clips in New Zealand

A narrow range of simple cord tensioner clips are available in New Zealand[27] and cost about $2 per window[28]. These do not securely enclose the cord and therefore do not look as if they would be as reliable as units sold in Australia[29] for about AUD 6.20 (NZD 6.60). The labour cost of the retrofitting is estimated at less than $4 per window if completed by a 'handyman'.[30] To summarise we estimate that the retrofit would cost about $6 to $10.60

[26] The only comment we have found on the effectiveness of these safety devices is *'CPSC staff believes that about two-thirds of potentially fatal window covering incidents could be prevented if the looped cords and long operating cords are made inaccessible or made so that a hazardous loop is not formed.'* Available at www.cpsc.gov/Regulations-Laws--Standards/Voluntary-Standards/Window-Blind-Cords.

[27] Consumer Affairs Victoria offers a free safety kit to people living in the state. The bracket works by attaching the bottom loop of a cord to the window frame and narrowing and tensioning the loop so that a child cannot insert its head into the loop. See https://www.consumer.vic.gov.au/products-and-services/product-safety/curtain-and-blind-cord-safety

[28] For example, see https://www.spotlightstores.com/nz/curtains-blinds/blinds/indoor-blind-accessories/tribeca-clear-cord-tensioner/BP80228331-clear and https://lincraft.co.nz/products/formr-cord-tensioner-30466715?variant=40632385077431 for 'basic' tensioners costing $2 per unit.

[29] See https://www.bunnings.com.au/windoware-curtain-chain-cord-tensioner_p1288887 for tensioners that enclose the cord loop.

[30] The median hourly pay for a handyman is reported as NZ$28.75 on https://www.payscale.com/research/NZ/Job=Handyman/Hourly_Rate. The installation of a tensioner would require less than 5 minutes per window.

per window. Comparing this to the average cost per CWC for a medium sized house in Table 3 the cost of the retrofit equates to:

- At most 3.4 percent to 6 percent of the estimated lowest cost CWC of $176.
- At least 1.9 percent to 3 percent of the estimated highest cost CWC of $320.

The average of these estimates is 3.3 percent of the average cost of a CWC or about one third of the cost per CWC of a new standard as calculated in section 5.2.1 above.

5.2.3 Benefit cost ratio estimate

Table 12 combines the assumptions listed in sections 5.2.1 and 5.2.2 to compare 'business as usual' with the benefits and costs of a new standard for CWC or fitting cord tensioning devices to new CWC.

Table 12 Benefit cost estimate over 30 years

Comparison of business as usual, new standard and fitting cord tensioners.

	Business as usual	New standard[1]		Tensioners[2]	
		Slow[3]	Fast[4]	Slow[3]	Fast[4]
Deaths	20.0	9.7	4.7	13.1	9.8
Avoided deaths		10.3	15.3	6.9	10.2
Net present value[5]					
Benefit ($m)[6]		18.4	29.7	12.3	19.8
Cost ($m)		169.1	290.6	55.8	95.9
Benefit less cost ($m)		**-150.7**	**-260.9**	**-43.5**	**-76.1**
Benefit Cost Ratio		**0.109**	**0.102**	**0.220**	**0.207**

Note:

1 A new standard removes the strangulation risk for new CWC and reduces the CWC strangulation death rate to zero once all existing CWC are replaced.

2 Fitting cord tensioners to new blinds reduces the strangulation rate death rate for new CWC to one third of the current rate and reduces the CWC strangulation death rate to 0.22 per year (one third of the current rate) once all existing CWC are replaced.

3 The 'Slow' scenario assumes the stock of blinds is replaced over 30 years and annual sales are $112 million (the 'low' estimate of the market size).

4 The 'Fast' scenario assumes the stock of blinds is replaced over 15 years and annual sales are $280 million (the 'high estimate of the market size).

5 The net present values are calculated using a discount rate of 5.0 percent per year applied the benefits or costs over 30 years.

6 The value of avoided death is calculated as the number of deaths multiplied by the value of a statistical life of $4.5 million.

Source: NZIER

Intervention to address the risk of strangulation by changing safety standards for all new CWCs is likely to be the slowest and least efficient of the potential interventions.

5.3 Applying the Living Standards Framework to the assessment

Table 13 shows the impacts of improving CWC safety on the Living Standards Framework (LSF) that the Treasury is encouraging government agencies to use in public policy appraisal (The Treasury 2021). This framework has 12 separate categories of contributions to wellbeing, to encourage policy development to consider a wider range of consequences than the economic resource use implications in CBA. Generally, the LSF is not yet at a stage where all its components can be quantified, and the stylised assessment does not indicate the relative value of different components. Its components are not additive and are prone to double counting. For example, subjective wellbeing is correlated with safety improvements and several other components.

Given these limitations, Table 13 shows the direction of the impact of improving CWC safety on social wellbeing. If it were possible to quantify these various components, the different intervention options for improving safety would score differently.

Table 13 Impact of improving safety on the Living Standards Framework

Whether safety interventions have detrimental, neutral or positive effects on components of wellbeing

Item	Comment
Civic engagement	Neutral
Cultural identity	Neutral
Environment	Neutral
Health	Positive, reducing injuries and calls on the health service
Housing	Positive slight improvement in feeling that home is safe.
Income and consumption	Detrimental if supply industry sees reduction in producer and labour surpluses; but this is offset by more spending in other industries
Jobs and earnings	Detrimental, as above. But reducing CWC deaths should lift long term income potential
Knowledge and skills	Neutral
Time use	Neutral
Safety and security	Positive, in reducing the incidence of premature death, grief and excess wariness in future actions
Social connections	Positive, in reducing the incidence of premature death of associates
Subjective wellbeing	Positive, in enhancing life satisfaction

Source: NZIER

5.4 Conclusions

Uncovered or unrestrained CWC pose a risk of death by strangulation for very young children, but it is difficult from current statistics to precisely estimate the exposure to that risk in New Zealand. In the UK and USA surveys suggest most homes have corded window coverings, but it is unlikely that New Zealand has such high market penetration judging by current sales data. However, there may be a legacy stock of old systems in existing dwellings which would widen the risk exposure

Unlike Australia, Canada, USA and UK, New Zealand does not have mandatory standards for CWC safety. New Zealand's death rate from CWC hazards is nearly double that of Australia over 2011 to 2018 and roughly four times higher than rates in Canada and the USA.

Benefit cost ratios are low and net benefits negative for across-the-board interventions (safety standards for new CWC and retrofitting of safety devices) because the number of households with children in the at-risk age group is a fraction (about one in eight) of the number of households with CWC.

Experience with safety standards for new CWC in Australia and Canada suggest they can halve the average death rate within the first 10 years.

6 References

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Appendix A New Zealand data

A.1 At-risk population definition

International data on CWC risk reports use a narrow (aged 1 to 3 years) and a broad (aged 0 to 4 years) definition of the 'at risk' children group. The narrow definition reflects the age group in which nearly all accidents occur, but the broad definition is easier match to other statistics such as household data.

A.2 Applying narrow and broad definitions to New Zealand data

We have identified two Statistics New Zealand estimates of the number of children aged 0 to 4. The higher estimate based on quarterly population estimates by age is shown in Table 14 below and is used for the calculation of fatality rates. (The number of children in the narrow definition is about 60 percent of the number of children in the broad definition. Therefore, fatality and injury rates based on the narrow definition are about two-thirds higher than the broader definition.)

Table 14 Estimated population of children

Number of children

31 March	Narrow Age 1 to 3 years	Broad Age 0 to 4 years	Narrow share of Broad
2006	170,680	285,280	59.8%
2007	173,710	291,000	59.7%
2008	177,210	299,390	59.2%
2009	183,810	305,900	60.1%
2010	189,800	312,900	60.7%
2011	192,830	317,590	60.7%
2012	191,390	316,800	60.4%
2013	188,600	313,360	60.2%
2014	186,790	309,120	60.4%
2015	183,060	306,020	59.8%
2016	182,260	304,690	59.8%
2017	181,480	305,710	59.4%
2018	183,470	305,160	60.1%
2019	183,500	305,910	60.0%
2020	183,980	306,740	60.0%
2021	181,970	304,640	59.7%

Source: NZIER[31]

[31] Calculated from 'Population Estimates - DPE, Table: Estimated Resident Population by Age and Sex (1991+) (Qrtly-Mar/Jun/Sep/Dec)' Statistics New Zealand. Available at http://infoshare.stats.govt.nz

The lower estimate based on Census data on the composition of families is shown in Table 15 below. We use this data as the estimate of the number of households that have children in the 'at risk age' group.

Table 15 Children in families with children aged 0 to 4 years

Number of children

Number of children aged 0 to 4 years[1]	2006	2013	2018
One-family household	239,382	248,265	234,807
Two-family household	23,361	29,742	26,157
Three or more family household	3,222	4,422	3,606
Other multi-person household	21	6	66
Total	**272,466**	**291,855**	**267,345**
Families with youngest child aged 0 to 4 years[2]	**2006**	**2013**	**2018**
Couple with child(ren)	153,885	164,691	167,190
One parent with child(ren)	48,555	48,999	38,556
Total	**202,440**	**213,690**	**205,743**
Children aged 0 to 4 years per family	**2006**	**2013**	**2018**
Children aged 0 to 4 years per family	1.35	1.37	1.30

Note:

1 'Household composition by age group, for people in households in occupied private dwellings'

2 'Age group of youngest dependent child in family by family type, for families with dependent children in occupied private dwellings'

Source: NZIER[32]

[32] Dataset: Household composition by age group, for people in households in occupied private dwellings, 2006, 2013, and 2018 Censuses (RC, TA, DHB, SA2), Statistics New Zealand. Available at http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE8419#

Dataset: Age group of youngest dependent child in family by family type, for families with dependent children in occupied private dwellings, 2006, 2013, and 2018 Censuses (RC, TA, DHB, SA2). Available at http://nzdotstat.stats.govt.nz/wbos/Index.aspx?DataSetCode=TABLECODE8400#

Appendix B Information on corded blind risk

B.1 USA

B.1.1 Information on hazards

The CPSC estimated that there were at least 11 fatal strangulations of children under 5 years old related to window covering cords per year in the USA from 1999 to 2010.

Table 16 below shows an analysis by the CPSC of the causes of 285 strangulation incidents over 1996 to 2012 (of which 184 were fatal). CPSC caution that the analysis 'is not a statistical sample of known probability' for cord related incidents and may not cover all the incidents that occurred. However, the total number of fatalities roughly matches the CPSC minimum average. The analysis highlights that strangulation risk arises from cords used for all types of window covering.

Table 16 Cord incidents in the USA over 1996–2012

Investigated incidents by type of window covering and associated cord

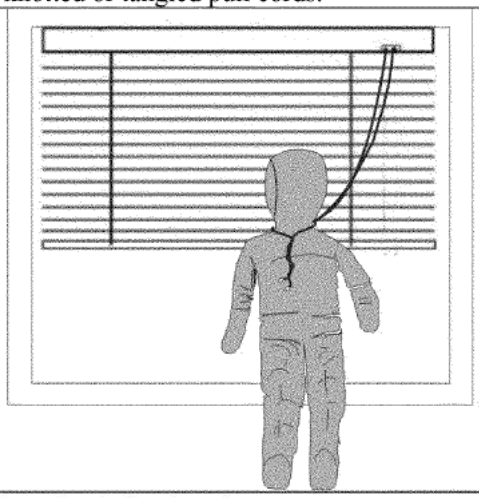
Window covering	Pull cord	Continuous loop cord or beaded chain	Inner cord	Lifting loop	Tilt cord	Unknown	Total	Share
Horizontal	90	3	23		2	13	**131**	53%
Vertical		41				2	**43**	17%
Roman	2	1	24				**27**	11%
Curtain/drapery	13					1	**14**	6%
Cellular	5	5					**10**	4%
Roller		6					**6**	2%
Roll-up	2			3			**5**	2%
Unknown	2	1				10	**13**	5%
Total	**101**	**70**	**47**	**3**	**2**	**26**	**249**	

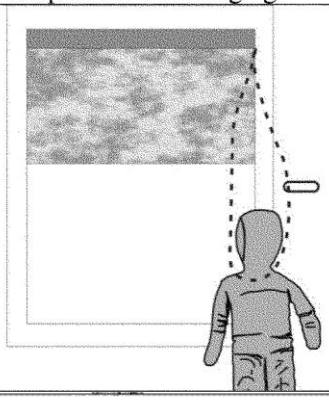
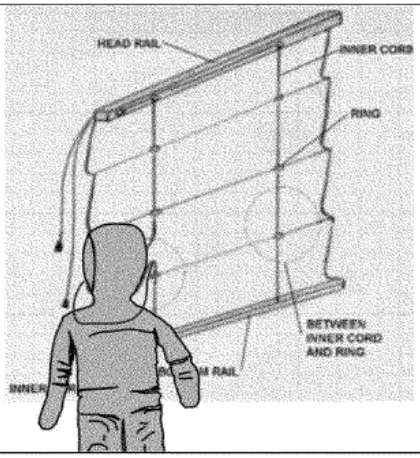
Source: U.S. Consumer Product Safety Commission (2015b, 2332)

Figure 2 below shows three of the nine diagrams of examples of CWC strangulation hazards shown in 'U.S. Consumer Product Safety Commission (2015b).

Figure 2 Examples of CWC hazards

<table>
<tr><td colspan="2">1. Loops created by knotted or tangled pull cords.</td></tr>
<tr><td>Loose pull cords can get knotted or tangled and create a loop in which children can strangle.

Blinds or shades with multiple cords can create this hazard.</td><td>  </td></tr>
<tr><td colspan="2">6. Continuous loop that is free hanging.</td></tr>
<tr><td>Children can insert their heads into the cord loop or beaded chain loop, which is not kept taut with a tension device.

Vertical blinds and shades that operate with continuous loop system can create this hazard.</td><td>  </td></tr>
<tr><td colspan="2">8. Opening between the Roman shade inner cord and the shade material.</td></tr>
<tr><td>Children can insert their heads between the inner cord of a Roman shade and the shade material and strangle.</td><td> 
</td></tr>
</table>

Source: U.S. Consumer Product Safety Commission (2015b, 2334–36)

B.1.2 Key events in recognition of corded blind risk

Figure 3 Key events in USA response to corded blind risk

Source: Fairwarning[33]

B.1.3 CSPC analysis of CWC risk in 2002[34]

A joint review of 70 in-depth investigation (IDI) reports between 1996 and 2002 by CPSC staff and the Window Covering Manufacturers Association (WCMA) indicated:

- *The leading hazard scenarios associated with window covering products are:*

[33] Available at: www.fairwarning.org/2015/04/as-window-blind-cords-strangle-toddlers-reforms-are-left-dangling/

[34] U.S. Consumer Product Safety Commission (n.d.)

- *Strangulation in the continuous loop cord or chain of vertical blinds and draperies or in loops formed by multiple cords terminating in a single tassel (older horizontal blinds);*
- *Strangulation in a loop formed by a knot tied in the lift cords (mostly associated with horizontal type blind cords but also included in some vertical type blind cords); and*
- *Strangulation in the inner loop of horizontal blinds.*

- *Sixty percent of the incidents involved cord systems typically used in horizontal-type blinds; 40 percent involved continuous loop systems typical to vertical blinds and draperies.*
- *Eighty-two percent of the incidents involved older products that did not conform to the voluntary standard.*
- *Blinds that meet the voluntary standard can still pose a hazard if the cords are tied up or if the loose cords get entangled.*

B.2 OECD corded blind death and injury information

In June 2016, the OECD Working Party on Consumer Product Safety conducted an international awareness campaign on the risk posed by CWC to young children. The report on the campaign included CWC death and injury data for participating countries which is summarised in Table 17 below (OECD 2017).

Table 17 Corded window covering death and injury data

Countries participating in OECD awareness campaign that reported data

Country	Period	Death	Injury
Australia	2001 to 2016	21	
Brazil[1]	2000 to 2013	540	
Canada	1996 to 2016	29	11
Chile	2015	1	
Finland	2010	1	
France	2004 to 2014	1	3
Iceland			1
Israel[2]			6
Japan	2011 to 2015	3	6
Korea		1	4
Turkey		1	
United Kingdom	1999 to 2016	28	11
USA[3]	1996 to 2012	184	101

Note:

1 Cause of death was 'accidental strangulation' which may include. deaths that are not attributable to corded window coverings.

2 Includes children up to age 17 and injuries from blinds falling on children.

3 Includes children aged eight years and under.

Source: NZIER

B.3 Australia

B.3.1 Death rates

Table 18 below explains how the estimate for the Australian CWC death rate was constructed from the following quotes:

> *The ACCC has investigated 21 known deaths of children in Australia caused by CIWCs from 1999 to 2018 (with no known deaths since 2014). The fatality rate has reduced from 15 deaths in the 11 years before the standard was introduced (1.36 per annum), to 6 deaths in the following 9 years (0.67 per annum). Of the six deaths that occurred since the introduction of the safety standard in 2010, all are the result of strangulation from cords to children aged 39 months and under, with five of those children aged 18 months and under. Four deaths occurred where the*

child was in a cot or bed in close proximity to a window where a CIWC had been installed. (Australian Competition and Consumer Commission 2019)

On 3 February 2020, on my request, my coroner's solicitor made enquiries with the NCIS regarding the number and details of cases of infants/children who have died as a result of strangulation on blind/curtain cords since 1 January 2010. Soon after, NCIS provided me with a report identifying that between 1 January 2010 and 31 December 2019 a total of 10 children had died nationally as a result of accidental blind cord strangulation, with 3 of those children dying in 2019. I note that since the NCIS issued their report, a subsequent child died in 2020.[35]

Table 18 Australian death rates

Combination of data reported by ACCC and Coroner

Period	Deaths		
	Total	Per year	per 100,000 children per year
1999 to 2009[1]	15	1.36	0.20
2010 to 2013	9	2.25	0.30
2014 to 2017	0	0.00	0.00
2018	1	1.00	0.12
2019	3	3.00	0.39
2020	1	1.00	0.13
1999 to 2009	15	1.36	0.20
2010 to 2018	10	1.11	0.11
2010 to 2020	14	1.27	0.16

Note:

1 The standard referred to in the ACCC report quote came into effect at the end of 2010, but the quote refers to 11 years.

Source: NZIER

B.3.2 Information on safety initiatives

A coroner's report[36] into an infant strangled by a blind cord on 3 October 2019 included the following comments

35 'FINDING INTO DEATH WITHOUT INQUEST', MR JOHN OLLE, CORONER, IN THE CORONERS COURT OF VICTORIA AT MELBOURNE, Court Reference: COR 2019 5378. Available at https://www.coronerscourt.vic.gov.au/sites/default/files/2020-12/INFANT%20A_537819.pdf . See pages 5-6 for report on national blind/curtain cord strangulation deaths and pages 7 to 9 for information on Consumer Affairs Victoria education campaigns. Pages 5 to 6

36 'FINDING INTO DEATH WITHOUT INQUEST', MR JOHN OLLE, CORONER, IN THE CORONERS COURT OF VICTORIA AT MELBOURNE, Court Reference: COR 2019 5378. Available at https://www.coronerscourt.vic.gov.au/sites/default/files/2020-12/INFANT%20A_537819.pdf . See pages 5-6 for report on national blind/curtain cord strangulation deaths and pages 7 to 9 for information on Consumer Affairs Victoria education campaigns.

- The National Coronial Information System had recorded 10 deaths between 1 January 2010 and 31 December 2019, of which 3 occurred in 2019 and another death in 2020.
- A summary of initiatives by Consumer Affairs Victoria relating to corded window covering safety which included:
  - Education campaign in 2010 with television advertising and direct communication with early childhood industry stakeholders, local councils and curtain and blind retailers led to orders for 17,000 curtain and blind cord safety kits.
  - Safety campaigns in 2011, 2014 and 2017. (The number of safety kits given away was not specified.)

Current promotion of CWC safety through its website, online platforms and community engagement sessions targeted at new parents, mother's groups and maternal health care providers. Consumer Affairs Victoria has distributed another 1.942 kits over the period 2018 to 2019.

Product recalls[37]

The following products have been recalled for not meeting child safety labelling requirements:

- Blindsonline.com.au Pty Ltd — Elements Silver Aluminium Venetian Blind - 25 mm Slat, 7 Feb 2018.
- eBay Trader - Designer Fabric For Less – Luxurious Linen Textured Blockout Roller Blind 31 Jan 2018.
- eBay Trader - wonderlandstore_house — Blackout Roller Blinds 31 Jan 2018.

B.4 Canada

CWC regulations have reduced but not eliminated the risk of fatal strangulation from CWC. Health Canada recorded:[38]

- Thirty fatalities in Canada involving strangulation from CWCs between 1989 and 2009, before the enactment of a national standard in 2009. The number of children aged up to 4 years averaged about 1.75 million over the period 2000 to 2009.[39] Therefore 1.42 fatalities per year equate to a fatality rate of 0.82 per 100,000 children.
- Nine fatalities over the period 2010 to 2018, an average of one per year. The number of children aged up to 4 years averaged 1.92 million over the period 2010 to 2018.[40] Therefore 1 fatality per year equates to a fatality rate of 0.52 per 100,000 children.

37 Available at https://www.productsafety.gov.au/product-safety-laws/safety-standards-bans/mandatory-standards/blinds-curtains-and-window-fittings

38 Canada Gazette, Part II, Volume 153, Number 9', page 1197.

39 Statistics Canada. Table 17-10-0005-01 Population estimates on July 1st, by age and sex. Available at www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000501

40 Statistics Canada. Table 17-10-0005-01.

B.5 UK

In the United Kingdom, the Royal Society for the Prevention of Accidents reports that 18 deaths involving looped blind cords occurred between the beginning of 2010 and early 2015. We estimate that the number of children aged 0 to 4 averaged about 4.00 million over the period 2010 to 2015. A fatality rate of 3.6 deaths per year equates to 0.09 per 100,000 children.